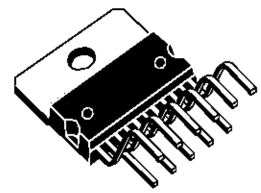
SGS-THOMSON MICROELECTRONICS

TDA7262

20+20W STEREO AMPLIFIER WITH STAND-BY

- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER
  28+28W TYP. MUSIC POWER
  20+20W @ THD = 10%, R_L = 4Ω, V_S = 28V
- HIGH CURRENT CAPABILITY (UP TO 3.5A)
- STAND-BY FUNCTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

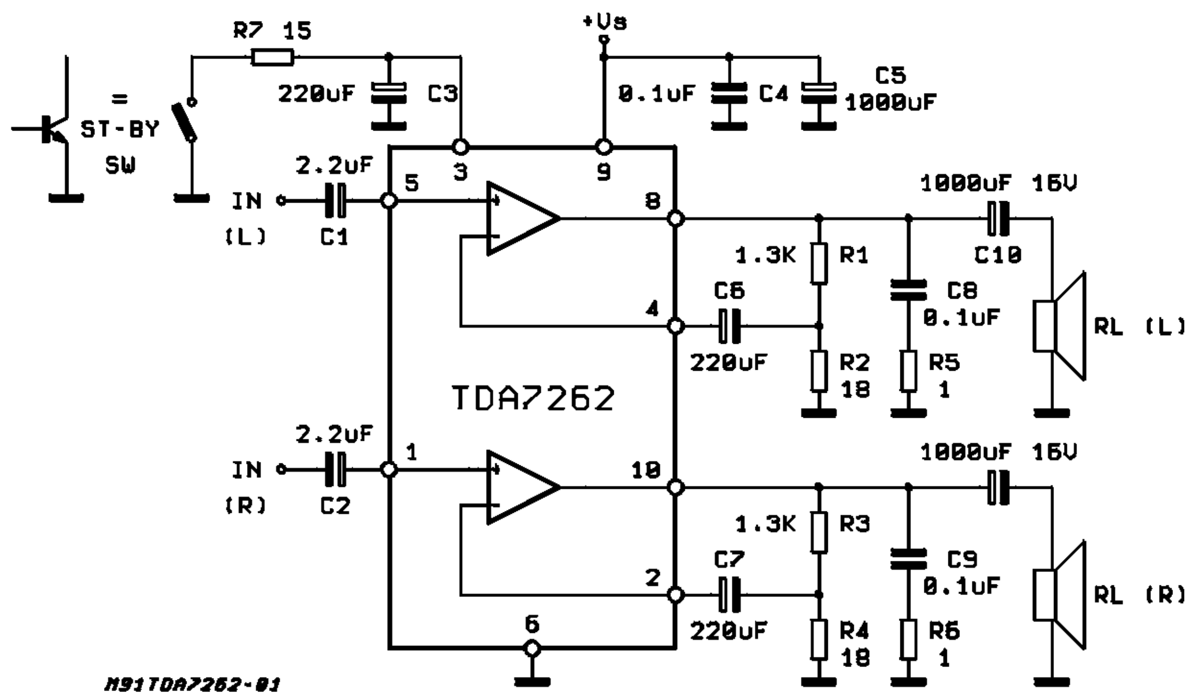


MULTIWATT11
ORDERING NUMBER: TDA7262

DESCRIPTION

The TDA7262 is class AB dual Hi-Fi Audio power amplifier assembled in Multiwatt package, specilally designed for high quality stereo application as Hi-Fi music centers and TV sets.

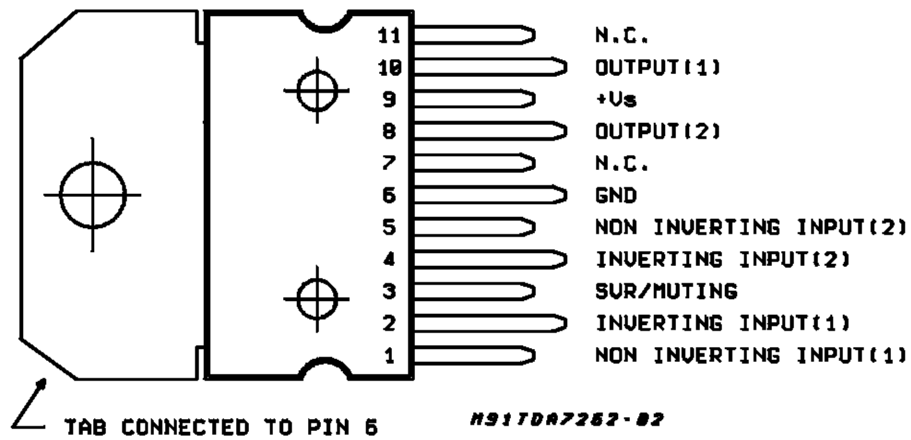
Figure 1: Stereo Application Circuit with Stand-By



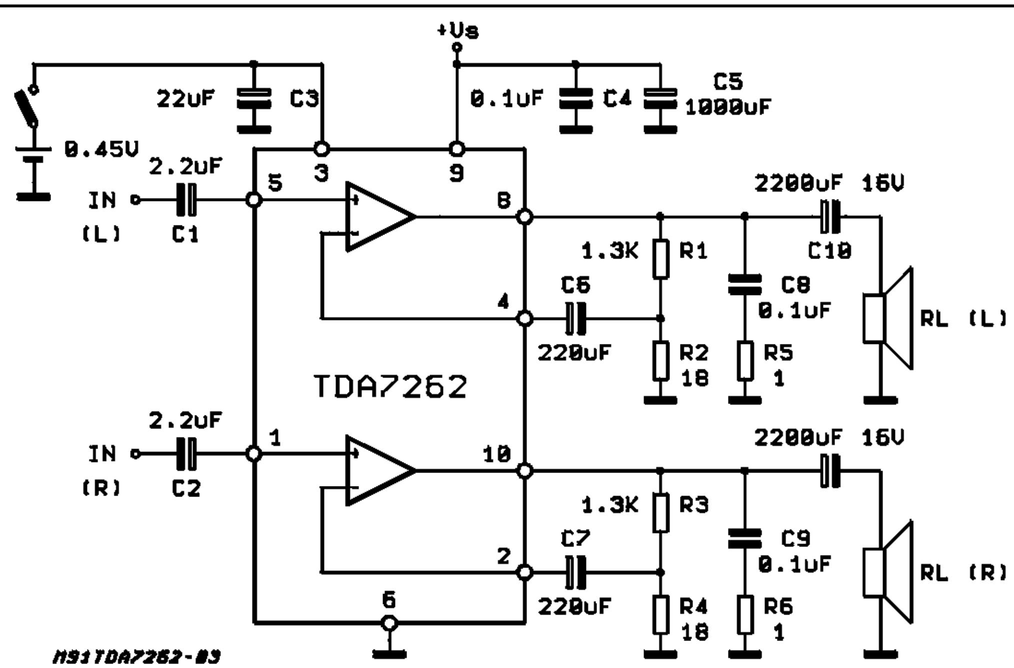
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	35	V
I_O	Output Peak Current (repetitive f > 20Hz)	3.5	A
I_O	Output Peak Current (non repetitive, t > 100µs)	4.5	A
P_{tot}	Power Dissipation (T_{case} = 70°C)	30	W
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	°C

PIN CONNECTION



TEST CIRCUIT



THERMAL DATA

Symbol	Description		Value	Unit
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	2.5	°C/W

ELECTRICAL CHARACTERISTICS (Refer to the stereo test circuit, V_S = 28V; f = 1KHz; T_{amb} = 25°C, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Voltage		8		32	V
V_O	Quiescent Output Voltage	V_S = 32V		15.5		V
I_d	Total Quiescent Current	V_S = 28V V_S = 32V		65 70	 120	mA mA
P_O	Output Power (each channel)	Music Power STD rules (T = 1s) V_S = 32V; d = 10%; R_L = 4Ω		 28		 W
		d = 10% R_L = 4Ω R_L = 8Ω	 10	 22 13		 W W
		d = 1% R_L = 4Ω R_L = 8Ω		 18 10		 W W
d	Total Harmonic Distortion	f = 100Hz to 10KHz P_O = 0.1 to 14W; R_L = 4Ω P_O = 0.1 to 8W; R_L = 8Ω		 0.2 0.1		 % %
CT	Cross Talk	R_L = 4Ω R_S = 100Ω f = 1KHz f = 10KHz		 60 50		 dB dB
V_i	Input Saturation Voltage	(Vrms)	300			mV
R_i	Input Resistance	f = 1KHz; non inverting Input	70	200		KΩ
f_L	Low Frequency roll-off (-3dB)	R_L = 4Ω		40		Hz
f_H	High Frequency roll-off (-3dB)	R_L = 4Ω		80		KHz
G_V	Closed Loop Voltage Gain	f = 1KHz	35.5	36	36.5	dB
ΔG_V	Closed Loop Gain match			0.5		dB
e_N	Total Input Noise Voltage	A Curve; R_S = 10KΩ		1.5		µV
		f = 22Hz to 22KHz; R_S = 10KΩ		2.5	8	µV
SVR	Supply Voltage Rejection (each channel)	R_S = 0 to 10KΩ; f_r = 100Hz V_r = 0.5V		55		dB
T_j	Thermal Shutdown Junction Temperature			145		°C

STAND-BY FUNCTION

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_3	Stand-By Threshold	V_S = 32V	0.45	0.9		V
A_M	Stand-By Attenuation	V_S = 32V; V_3 < 0.45V	60	100		dB
I_M	Stand-By Quiescent Current	V_S = 32V; V_3 < 0.45V		3	5	mA

APPLICATION SUGGESTION

The recommended values of the components are those shown on application circuit of Figure 1. Different values can be used; the following table can help the designer.

Component	Recomm. Value	Purpose	Larger than	Smaller than
R1 and R3	1.3KΩ	Close loop gain setting (*)	Increase of gain	Decrease of gain
R2 and R4	18Ω		Decrease of gain	Increase of gain
R5 and R6	1Ω	Frequency stability	Danger of oscillations	
C1 and C2	2.2µF	Input DC decoupling	higher turn-on delay	- worse turn-ON pop - higer low freq. cutoff. Increase of noise
C3	22µF (**)	- Ripple rejection - Stand-by time constant	Increase of the Switch-on time	- Degradation of SVR - worse turn-OFF pop by stand-by
C4	100nF	Supply setting		Danger of oscillations
C5	1000µF	Supply setting		worse turn-OFF pop
C6 and C7	220µF	Feedback input DC decoupling		
C8 and C9	0.1µF	Frequency stability		Danger of oscillations
C10 and C11	1000µF to 2200µF	Output DC decoupling		Higher low-frequency cut-off

(*) Closed loop gain must be higher than 26dB.
(**) 220µF in case of stand-by utilization.

Figure 2: Ouput Power vs. Supply Voltage

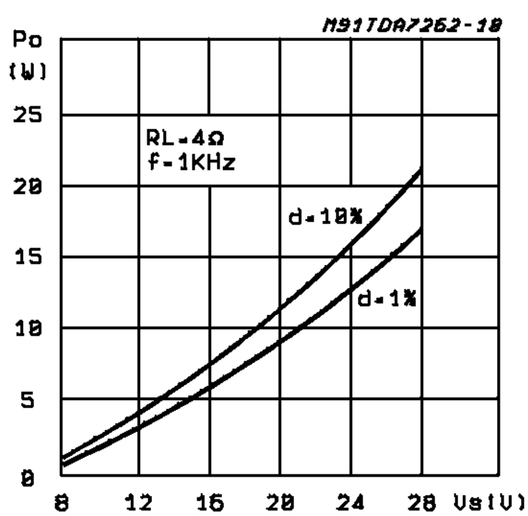
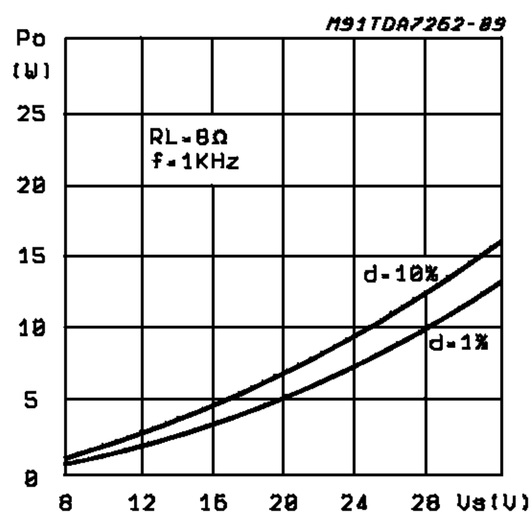


Figure 3: Ouput Power vs. Supply Voltage



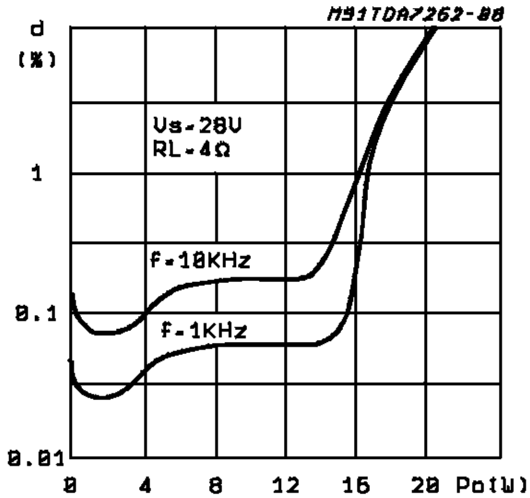


Figure 4: Distortion vs. Ouput Power

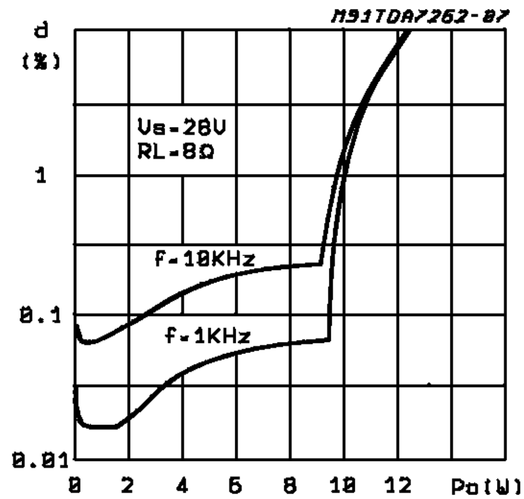


Figure 5: Distortion vs. Ouput Power

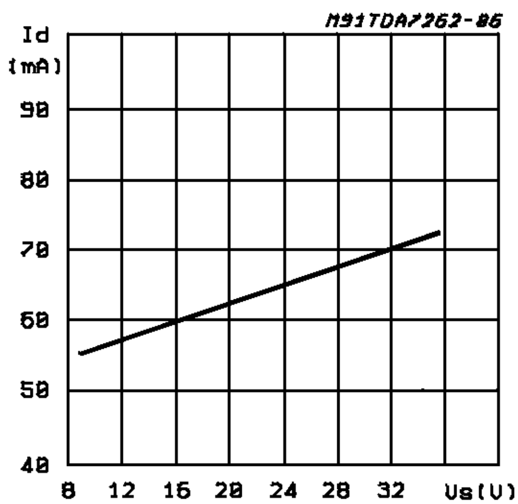


Figure 6: Quiescent Current vs. Supply Voltage

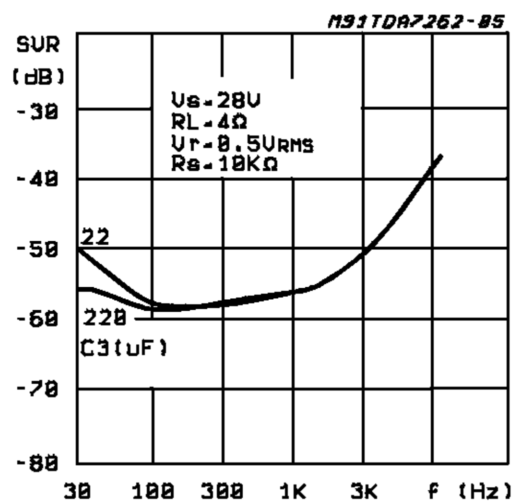


Figure 7: Supply Voltage Rejection vs. Frequency

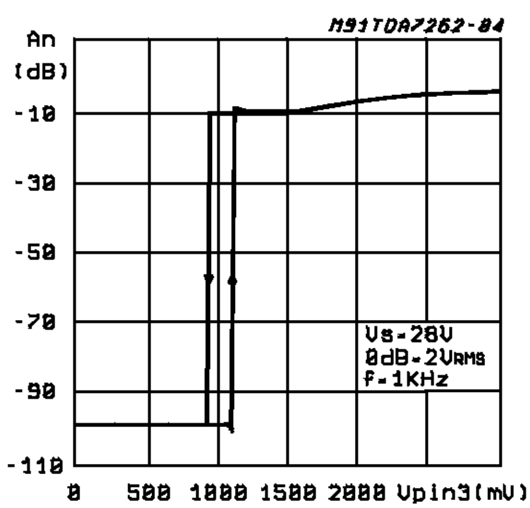


Figure 8: Output Attenuation vs. Vpin 3

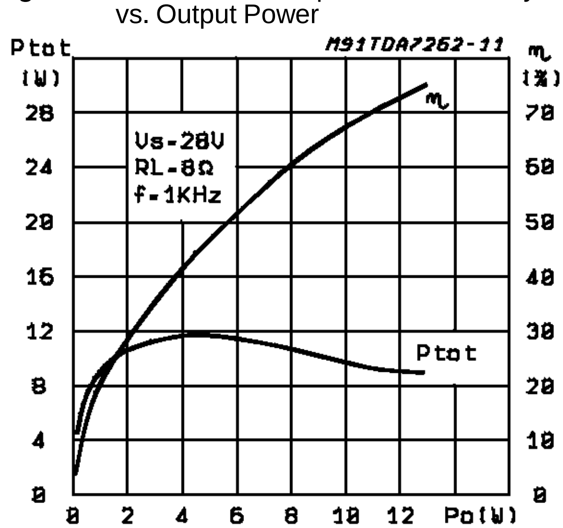


Figure 9: Total Power Dissipation & Efficiency vs. Output Power

Figure 11: Total Power Dissipation & Efficiency vs. Output Power

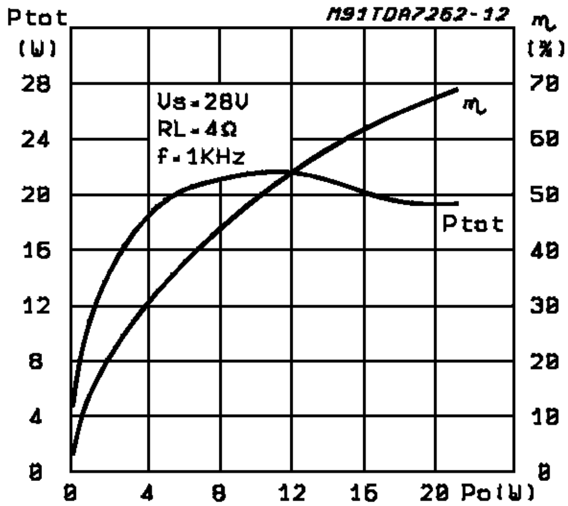
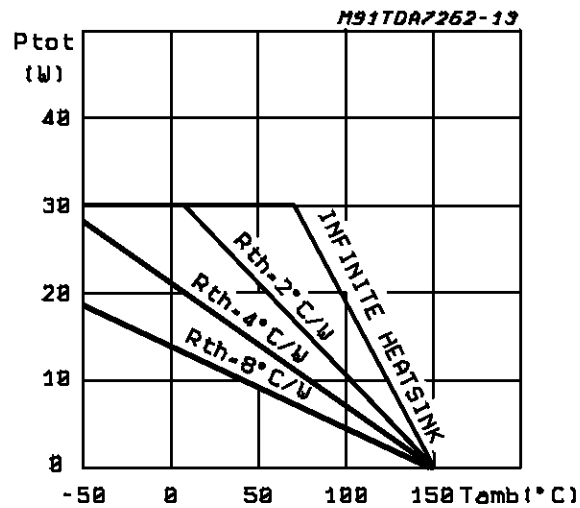


Figure 12



BUILD-IN PROTECTION SYSTEMS

Thermal shut-down

The presence of a thermal limiting circuit offers the following advantages:

1) an overload on the output (even if it is permanent), or an excessive ambient temperature can be easily withstood.

2) the heatsink can have a smaller factor of safety compared with that of a conventional circuit. There is no device damage in the case of excessive junction temperature; all that happens is that P_O (and therefore Ptot) and I_O are reduced. The maximum allowable power dissipation depends upon the size of the external heatsink (i.e. its thermal resistance); Figure 12 shows this dissipable power as a function of ambient temperature for different thermal resistance.

Short circuit (AC Conditions)

The TDA7262 can withstand accidental short circuits across the speaker made by a wrong connection during normal play operation.

MOUNTING INSTRCTIONS

The power dissipated in the circuit must be removed by adding an external heatsink.

Thanks to the MULTIWATT package attaching the heatsink is very simple, a screw or a compression spring (clip) being sufficient. between the heatsink and the package it is better to insert a layer of silicon grease, to optimize the thermal contact; no electrical isolation is needed between the two surfaces.

MULTIWATT11 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.88		0.95	0.035		0.037
G	1.45	1.7	1.95	0.057	0.067	0.077
G1	16.75	17	17.25	0.659	0.669	0.679
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.87	0.886
L2	17.4		18.1	0.685		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.73	5.08	5.43	0.186	0.200	0.214
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152

